



Research and Technology Program Directorate

12 July 2016

Briefing for Small Business Information Forum Initiative (SBIFI)

Bob Seltzer

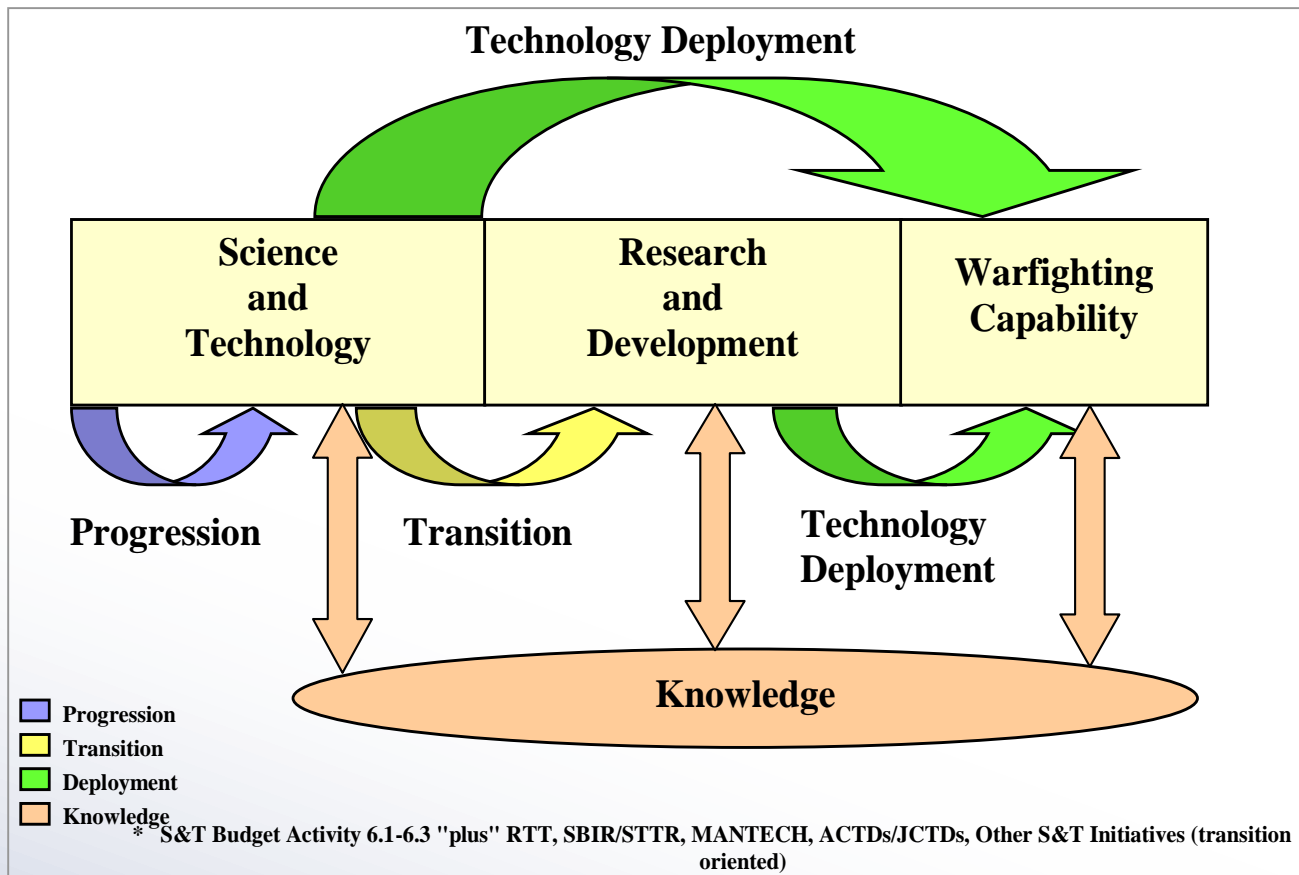
Deputy Director, Research & Technology Programs, NAWCTSD





Mission Statement

To provide program management and support for intellectual products and services for Science and Technology and Research and Development.





AIR-4.6T Directorate Vision

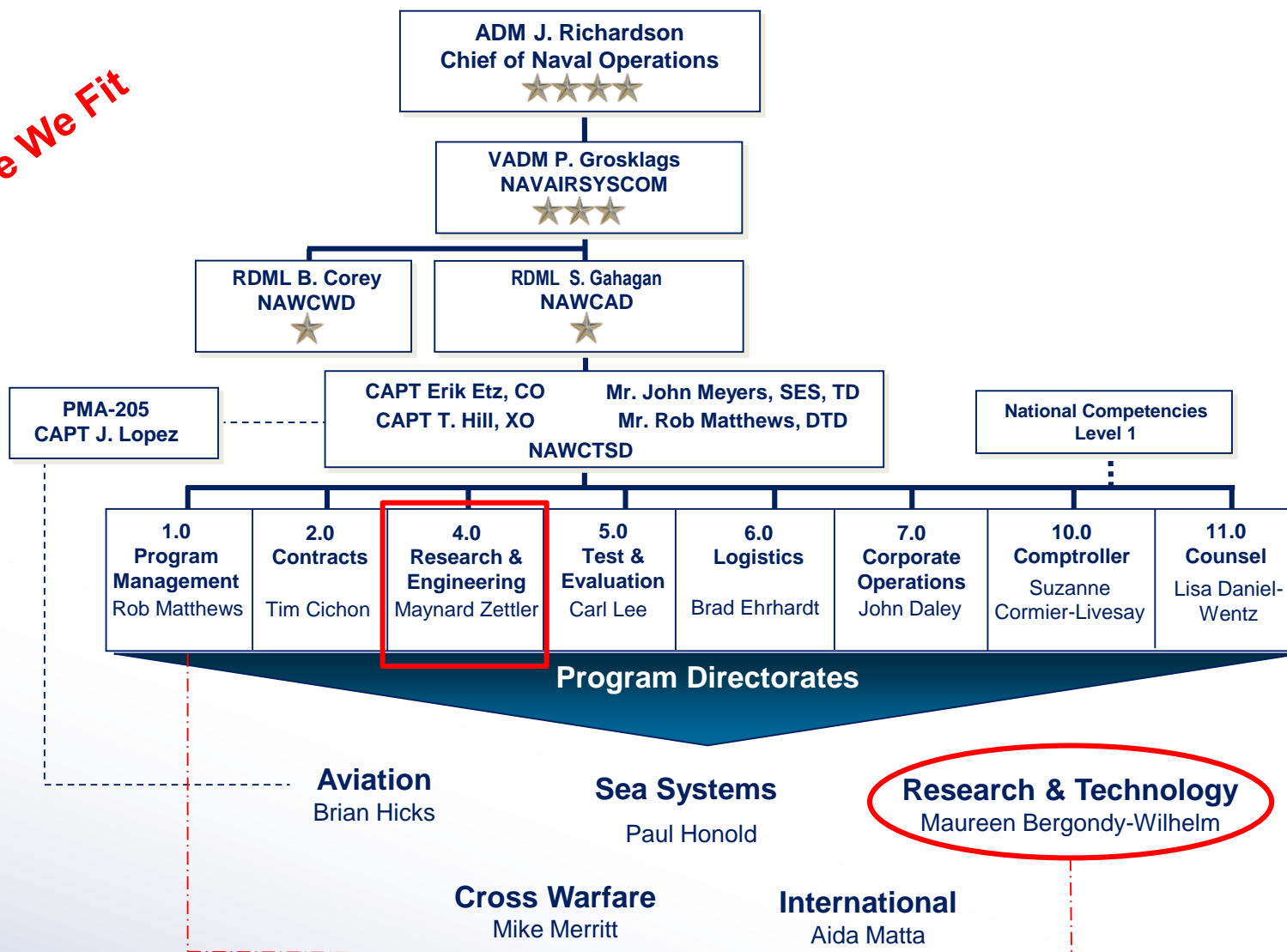
Our vision:

- *Merge behavioral and cognitive sciences with engineering to produce effective training solutions and systems*
- *Use the latest technology to improve performance, reduce risk, and reduce cost in new training solutions and systems*



NAWCTSD Organization

Where We Fit





Research and Technology Program Directorate



Robert Seltzer
Civilian Deputy
S&T and Advanced Research
Program Manager



Maureen Bergondy-Wilhelm
Director



CDR Henry Phillips
Military Deputy
Naval Innovative Science &
Engineering Program Manager



John Hodak
Technology Transition
Program Manager



Sunny Simmonds
Technology Transfer
Program Manager

Dani McNeely
Assistant Program Manager

Mark Thailing
Business & Financial Management Support

Melany Penn
S&T Project Analyst

Jennifer Bell
Human Research Participant Protection Program

T'ann Perrault
R&D Contracting Support



Our Customers

Naval Customers

- Office of Naval Research (ONR)
- Command Naval Air Forces (CNAF)
- NAVAIR (PMAs & CTO)
- NAVSEA - Surface & Undersea
- Fleet Forces Command (FFC)
- Naval Aerospace Medical Research Laboratory (NAMRL)
- Naval Surface Warfare Center, Crane
- Navy Modeling & Simulation Office
- Navy Medical Research Unit
- Surface Warfare Officer School (SWOS).
- PMTRASYS – USMC
- Training & Education Command (TECOM) - USMC

Other Federal and State Customers

- DHS: Federal Law Enforcement Training Center (FLETC)
- National Institute of Justice (NIJ)
- Pennsylvania Dept. of Military Affairs

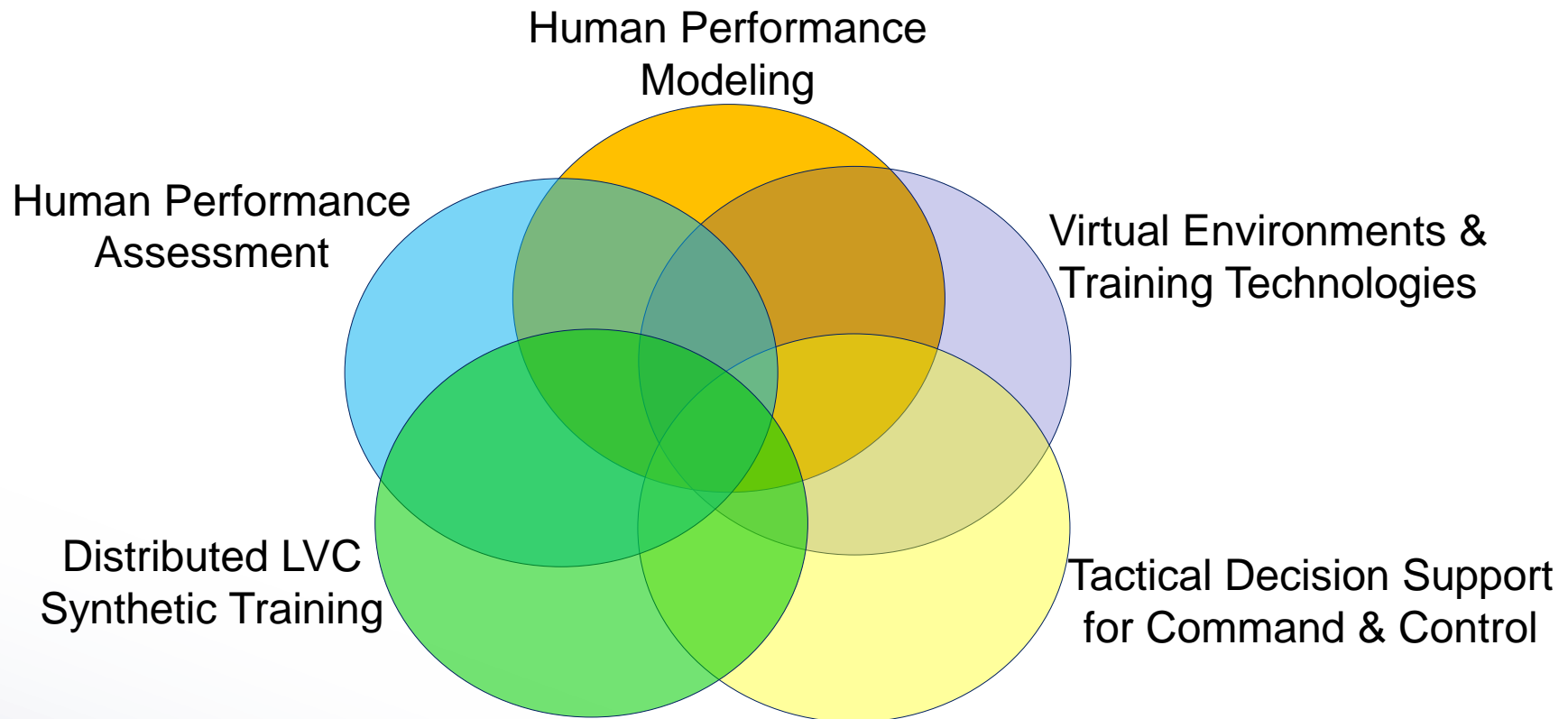
DoD Customers

- Air Force Research Lab
- DARPA
- Army Research Lab (ARL)
- Joint Forces Command (JFCOM)
- OSD Health Affairs:
Joint/Army/Navy/USAF/USMC
Medical Research
- Joint Improvised Explosive
Device Defeat
Org. (JIEDDO)
- Office of Secretary of Defense –
Office of Technology Transition
- Defense Equal Opportunity
Management Institute (DEOMI)
- DoD: Northeast Counter-Drug
Training Center





S&T Focus Area





Current areas of Research

- Live, Virtual & Constructive (LVC) Training
- Adaptive & Intelligent Training
- Virtual Environments & Technologies for Training
 - Visual & Haptic Enhancements
 - Augmented Reality
 - Gaming Technologies
- Counter Anti-Access/Area Denial Tactics Training & Experimentation
- Cyberwarfare
 - Human Performance & Training
 - Modeling Effects

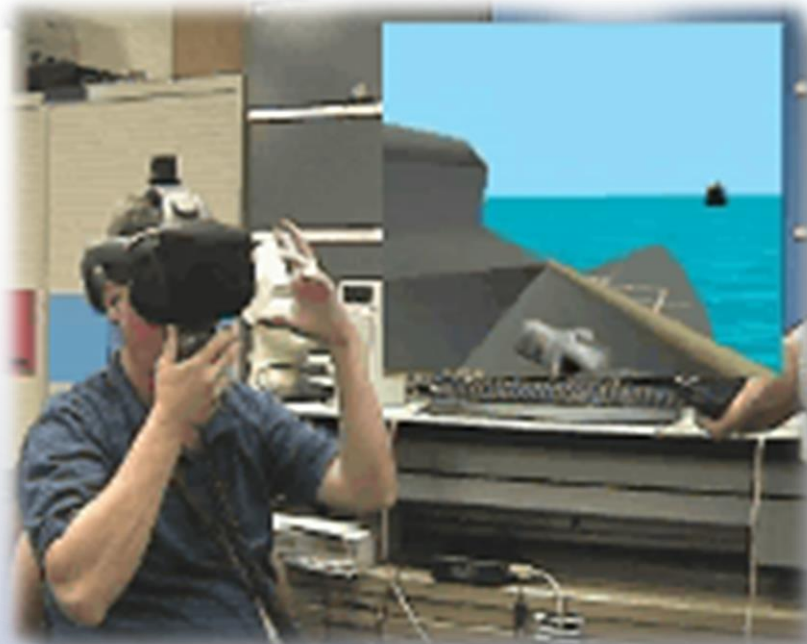
NAWCTSD Research Summaries can be found at:

<http://www.navair.navy.mil/nawctsd/Programs/Files/NAWCTSD-FY-15-16-Grey-Book.pdf>



Major Research & Technology Programs

- ONR Science & Technology
- Section 219 Science & Technology
- Technology Transition
 - Small Business Innovation Research
 - Small Business Technology Transfer
 - Air Warfare Training Development
- Technology Transfer





Technology Transfer

Federal Technology Transfer

Process to transfer knowledge, facilities or capabilities developed under federal R&D funding fulfill public and private needs

- **Cooperative Research and Development Agreements (CRADA) - 12**
 - Between federal parties and non-federal parties to perform cooperative and mutually beneficial Research and Development (R&D); R&D effort must meet the lab's mission*
 - Each partner can contribute facilities, equipment, expertise and personnel
 - **Non-Federal parties can contribute funds; federal parties can not contribute funds**
- **Patent Licensing Agreements (PLA) - 1**
 - License commercial companies to exploit government-developed inventions commercially
 - Government retains rights to use inventions for government purposes
 - **Invention disclosures/patents are important!**
- **Education Partnership Agreements (EPA) - 5**
 - Between an educational institution and a DoD laboratory/organization
 - Provides technology assistance for all levels of education; No funds exchanged



Partnering with Industry, Academia and State/Local Governments

Collaborative R&D

Cooperative Research and Development Agreement (CRADA)

Material/Equipment Transfer for Evaluation

Limited Purpose CRADA (LP-CRADA)

Use Navy invention or software

License Agreement

"Purchase" Unique Navy Lab Services/Products

Commercial Services Agreement (CSA)

Tech Transfer Program Manager here today with our SB Advocate





How to Participate in NAWCTSD Research

- Tell us about your Independent Research and Development (IRAD) efforts
- Respond to SBIR/STTR Solicitations
 - Small Business – Large Business Partnering, Academia can be included
- Pursue Cooperative Research and Development Agreements (CRADAs) with NAWCTSD when we find an area of common interest
- Partner on Joint Proposals (Scientist to Scientist/Engineer to Engineer)
 - If successful w/joint proposals several contract vehicle options available:
 - SBIR Phase III
 - NAWCTSD R&D Broad Agency Announcement (S&T projects only)
 - ONR/DoD/funding agency contracting

<http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities.aspx>

Research & Technology Program Office POC

Deputy Director, Robert Seltzer

407-380-4115

Robert.Seltzer@navy.mil



Questions?



Recent Small Business Projects (1/3)

- **N161-007: Immersive Parachute Descent Procedure, Malfunction and Decision-Making Training System**
 - Develop a novel reconfigurable device training system that provides immersive Parachute Descent Procedure (PDP), malfunction and decision-making training to allow the survival training community to deliver cross-platform training without the need for multiple training systems or platform specific peripherals.
- **N162-090 Adaptive Training System for Maintaining Attention during Unmanned Aerial Systems (UAS) Operations**
 - Help individuals learn to remain attentive during long shiftwork associated with unmanned aerial systems (UAS) missions. This result will be achieved by developing adaptive training to meet the different needs of operators, UAS, and their missions.
- **N162-080 Optically Based Small Arms Force-On-Force Training System**
 - Develop Optically Based Small Arms Force-On-Force Training System (OBSAT) for live, force-on-force engagement that provides an alternative to laser-based engagement systems.



Recent Small Business Projects (2/3)

- **N16A-T002: Methods for Actionable Measures of Absolute Cognitive Workload**
 - Develop objective, measureable means of workload for determining impacts on individual operator, crew-level, and/or multi-team system level performance when life support or aircrew systems are added or modified.
- **N152-094: Model-Based Tool for the Automatic Validation of Rotorcraft Regime Recognition Algorithms**
 - Develop a model-based tool/test kit to validate rotorcraft-based regime recognition codes for effective integration into health and usage monitoring systems (HUMS).
- **N152-088: Infrared Search and Threat Identification**
 - Research, design, & develop a S/W application that can be used with an infrared (IR) sensor to identify a potential target threat by analyzing its infrared signature
- **N142-090: Crew Role Player Enabled by Automated Technology Enhancements (CREATE)**
 - Develop synthetic crew role player to support complex crewmember interactions during dynamic training events.



Recent Small Business Projects (3/3)

- **N142-104: Effective Measures of Training Display System Performance**
 - Develop an objective and efficient measurement toolkit for conducting validated acceptance tests for simulation training display systems.



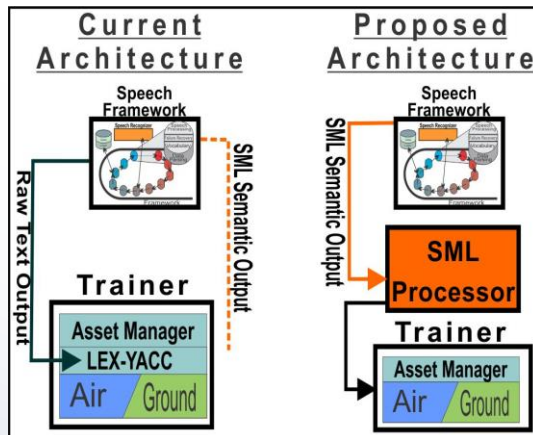
Recent Project Successes



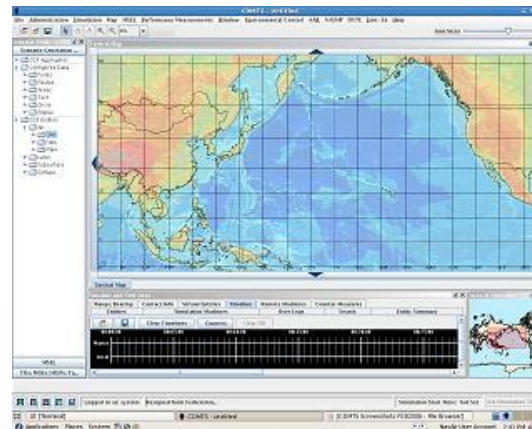
Adaptive Training for Combat Information Center Teams



Adaptive Training for Submarine Navigation & Piloting



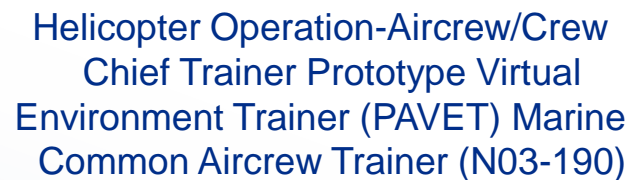
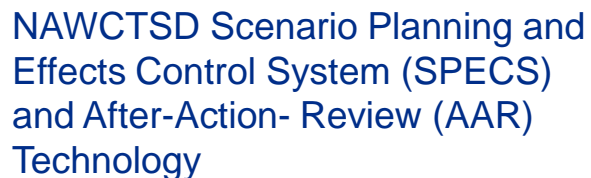
Framework for Context Driven Speech Recognition Processing



Tactical Environment & Role Player Station (TERS)



Helicopter Control Officer (HCOT) and Landing Signal Enlisted (LSE) Training Simulator Upgrades





ONR Science & Technology

- **Discovery & Invention**
 - Tutoring Effectively: Assessment of Common Heuristics
 - Basic Electricity & Electronics Tutorial Learning Environment
- **Future Naval Capabilities – Capable Manpower (FNC)**
 - Adaptive Training (2 Programs) - Transitioned
 - LVC Training Technologies (3 Programs) – In Transition
 - UxS Human Factors, Training, and Selection (2 Programs)
 - EDUCAT2E: A2AD, NIFC-CA
 - EWTacAid
- **Technical Support to ONR**
 - Code 34: Technical direction of training, human factors and medical S&T programs
 - Code 30: Technical direction of human performance, training and education S&T programs



NAWCTSD Sec. 219 Examples

- **Basic & Applied Research**
 - Information Presentation Modality: A Phased Solution (UxS Application)
 - NextGen of Aviation Selection: UASs (Fed into FNC effort)
 - Efficacy of Feedback Parameters in Adaptive Training Systems (Design Guidelines)
- **Transition Research**
 - Performance Assessment Trends in Training Enhancing Readiness Reporting for Naval Systems (PATTER²NS) – Transitioning into P-3/P-8
 - UAS Common Control Station Prototype-based Training Research – Cross Warfare Center Collaboration
- **Workforce Development**
 - Training
 - Aerodynamics Modeling Software Training Course
 - Aero Modeling Simulation & Training (MS&T) Professional Short Courses
 - Higher Education
 - PhDs in Computer Engineering, Human Factors, Industrial Org Psychology
 - Strategic Growth
 - Creation of Realistic Simulated Human Characters Within CryEngine3
 - Advanced Low-Power Wireless Mesh/Ad Hoc Network Device Capability
 - Strategic Development in Live Virtual Constructive (LVC) Terrain Database Correlation and Regeneration



Transition Research

- **Performance Measurement Engine (PME)**
 - Maritime Aviation with application to all Platforms
- **Post Mission Assessment for Tactical Training & Trend Analysis (PMATT-TA)**
 - P-8/P-3 integration
- **Training Effectiveness of FA-18 TOFT w/ Motion Cueing Seat & Improved Visuals**
 - FA-18 FCLP training
- **SIBRs**
 - NVG Mission Rehearsal Capability (Phase 3)
 - Hypoxia Training in Normal Pressure Chambers
 - Innovative Collimated Displays



Technology Transfer (T2)

- **Federal Technology Transfer**

- Process to transfer knowledge, facilities or capabilities developed under federal R&D funding fulfill public and private needs

- **Sample Transfers**

- Scenario Planning and Effects Control System & After Action Review Technology Transitioned to:
 - USMC Infantry Immersion Trainers
 - Navy Group Two EoD Training and Evaluation Unit 2 Full Immersion Scenario Training Facility
 - Federal Law Enforcement Training Center
 - North East Counterdrug Training Center High Risk Entry Facilities